Rapid Shutdown System installation manual

Shutdown device(Scoutbox450), Shutdown controller(Beetrans)

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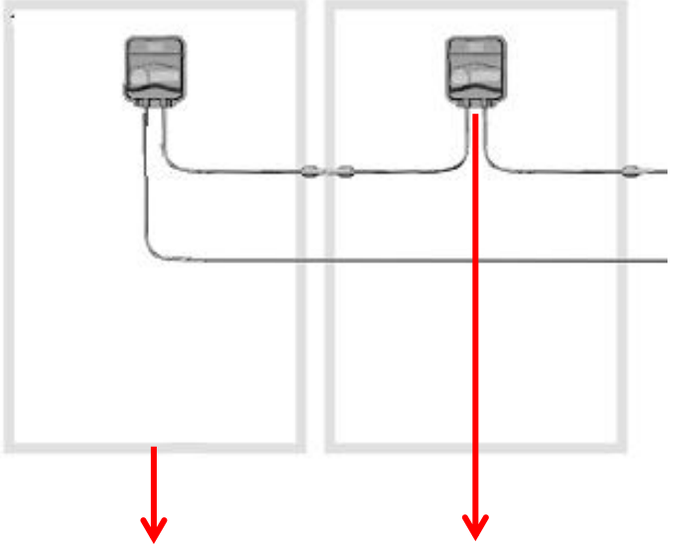
Product Introduction:

Components of a rapid shutdown communication system are Scoutbox450(s) and Beetrans(s)



Shutdown controller
Beetrans

Product description

Shutdown device is combined traditional junction box with intelligent shutdown component, capable of module-level rapidly shutdown, reduce shock hazard for maintainer and fireman.

Product description

Controller of module-level shutdown system. When system under normal operation model, Beetrans keep sending" permission to operate" signal to shutdown device. When red button on Beetrans been pressed, Beetrans stop to send " permission to operate" signal to shutdown device. Shutdown output of modules, voltage of entire PV station under safety requirement in 30s,reduce shock hazard for emergency responders. Beetrans sending permission to operate" signal to shutdown device again and system generate power after restore red bottom.

Installation Steps:

1. Confirm installation information of PV station

2. Prepare tools

3. Mounting Beetrans

4. Connecting wire

4.1 Connection between Scoutbox450es

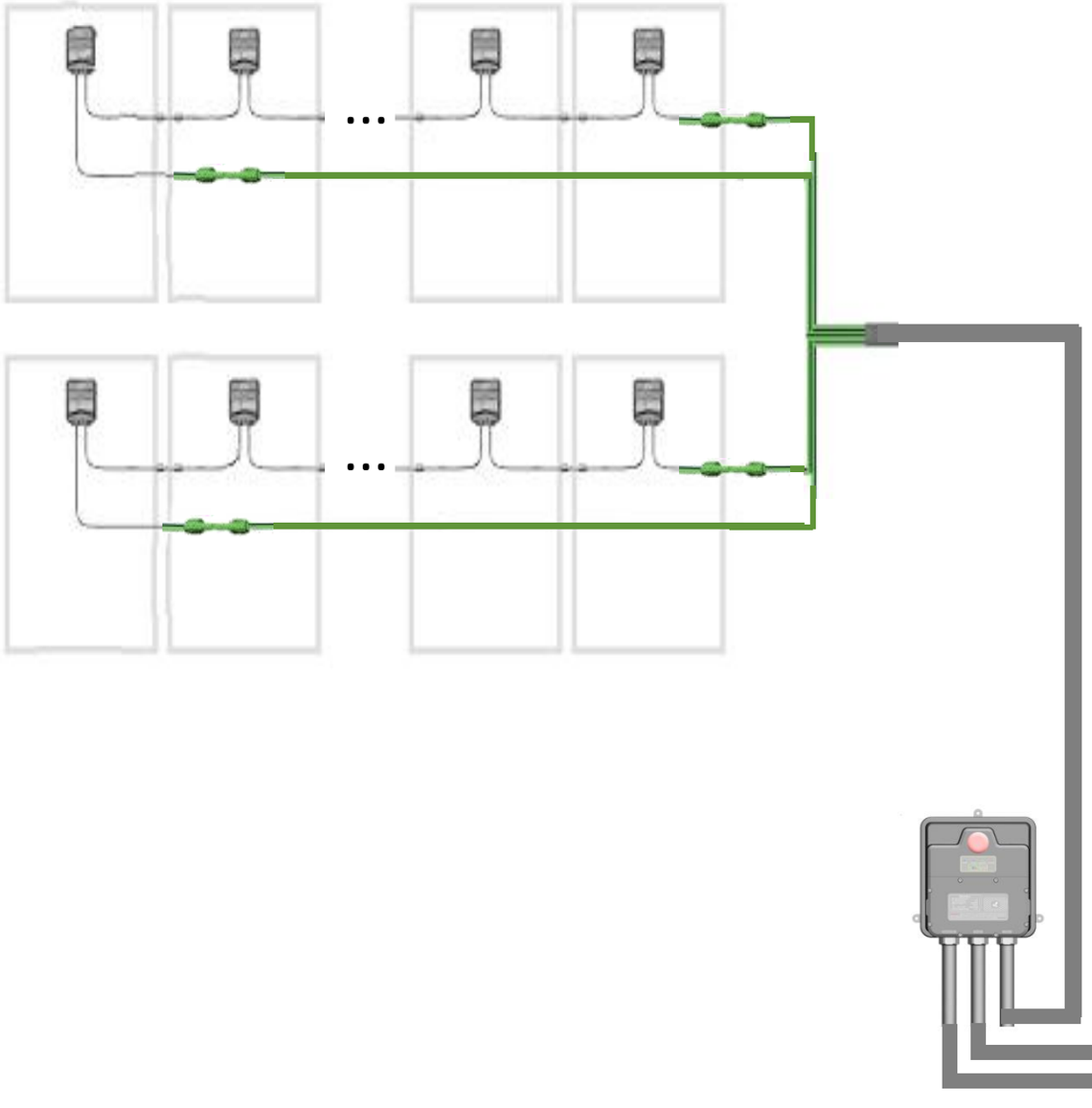
4.2 Connection of EMT pipe

4.3 Connection of Beetrans

4.3.1 Module String≤2

4.3.2 Module String > 2

1. Confirm installation information of PV station



Information need to confirm：

1. distance between PV array

2. mounting location of Beetrans

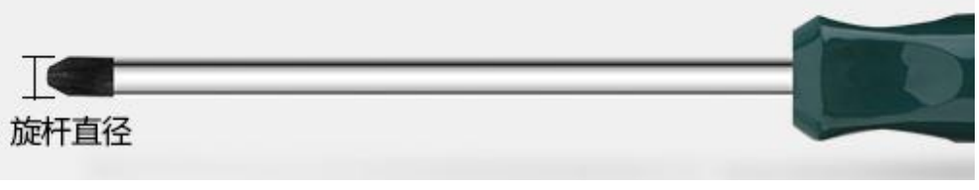
3. mounting location of inverter 4.

mounting location of distribution box

(green line is part need to connect)

2. Tools and material need be prepare

- Tools：5mm or 6mm Cross screwdriver，3.2~4.0mm Straight screwdriver and 1.8~2.0mm Straight screwdriver，Multimeter，Impact drill (Φ 8mm)，small hammer，self-preparing 3/4 EMT pipe (outside)，pipe accessories (standard parts），Power adapter，branch box (125*125*75mm)



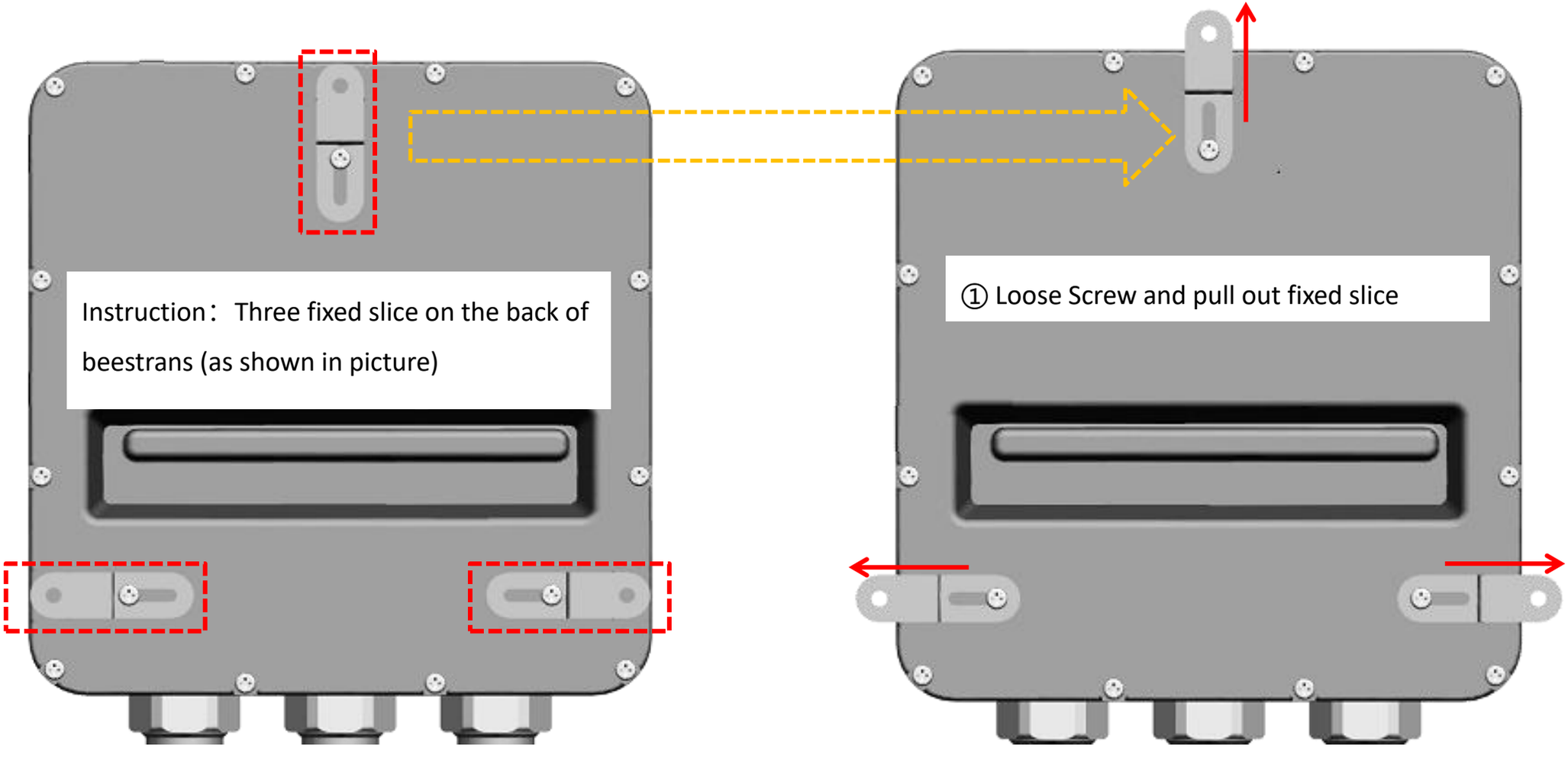
Shell dismount： 5mm or 6mm Cross screwdriver

PV cable terminal：3.2~4.0mm Straight screwdriver

DC power terminal /RS485 terminal:

1.8~2.0mm Straight screwdriver

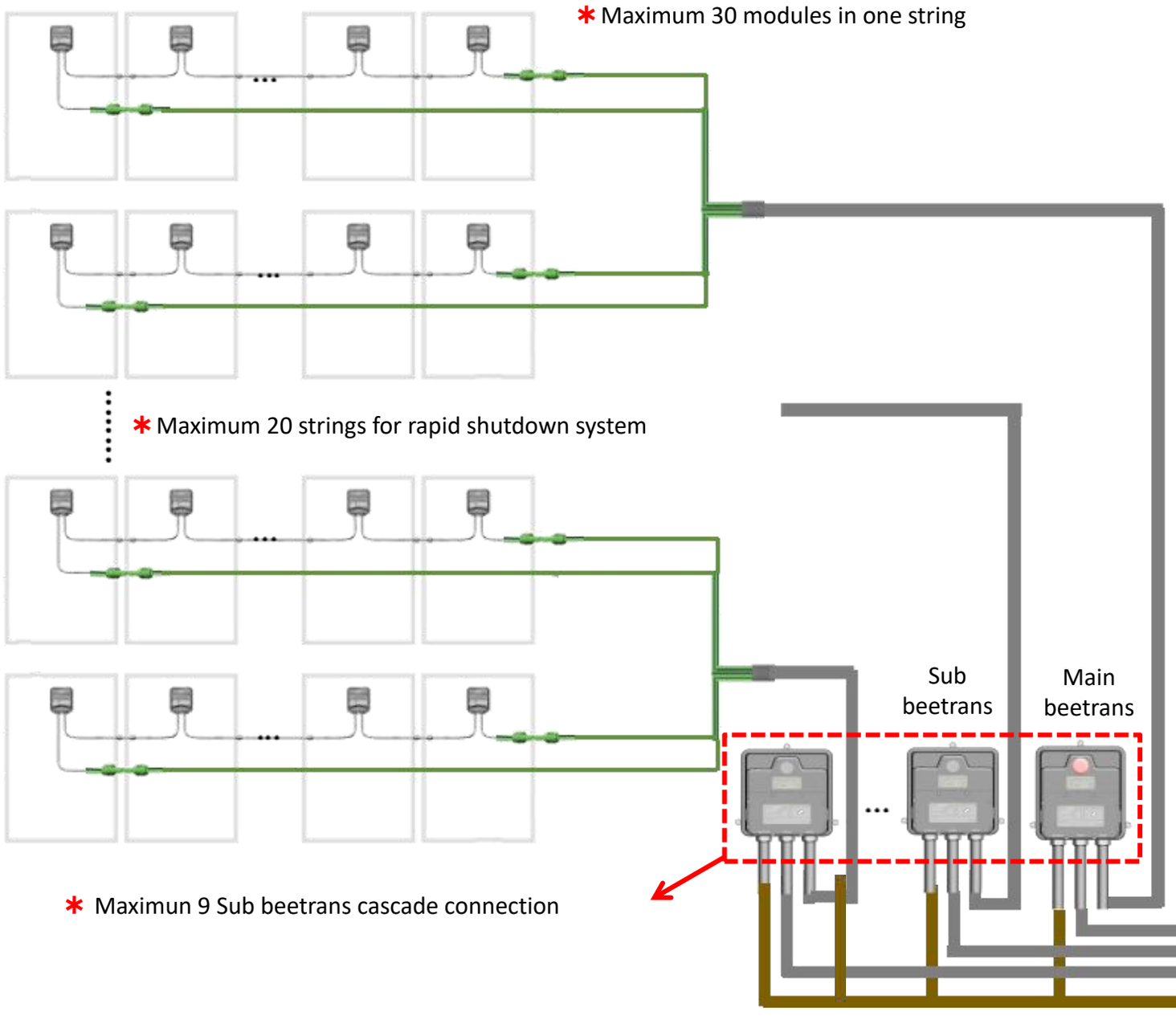
3. Mounting Beetrans



② After drilling holes in the wall with a percussive drill, the plastic expansion pipe is driven into the wall, and the controller is fixed to the wall with a matching M5 screw.

4. Connecting wire

4.1 Connection between Scoutbox450es



Instruction： Scoutbox450 is traditional junction box integrate shutdown function

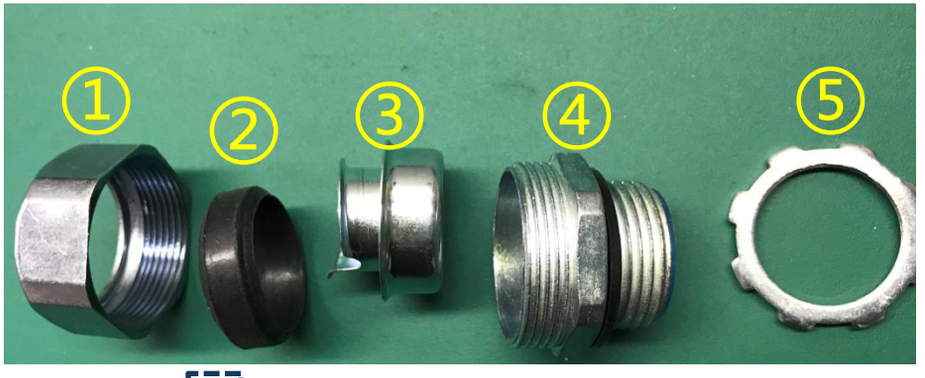
Connection mode： Scoutbox450es are connected in series, and the positive and negative connections are connected to each other.

Wire of beetrans is short. Prepare wire as green line showed in picture

4. Connecting wire

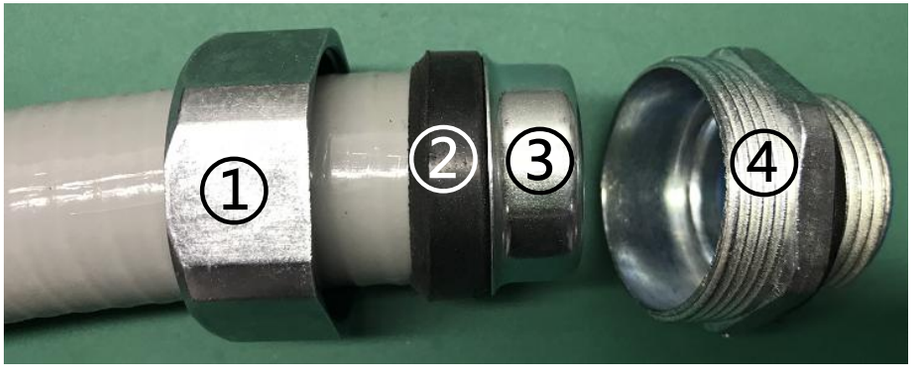
4.2 Connection of accessories of EMT pipe

Split in five parts



Part ①;②;③ hitch to EMT pipe as shown picture

Tighten part①;④



Insert into three holes of beetrans

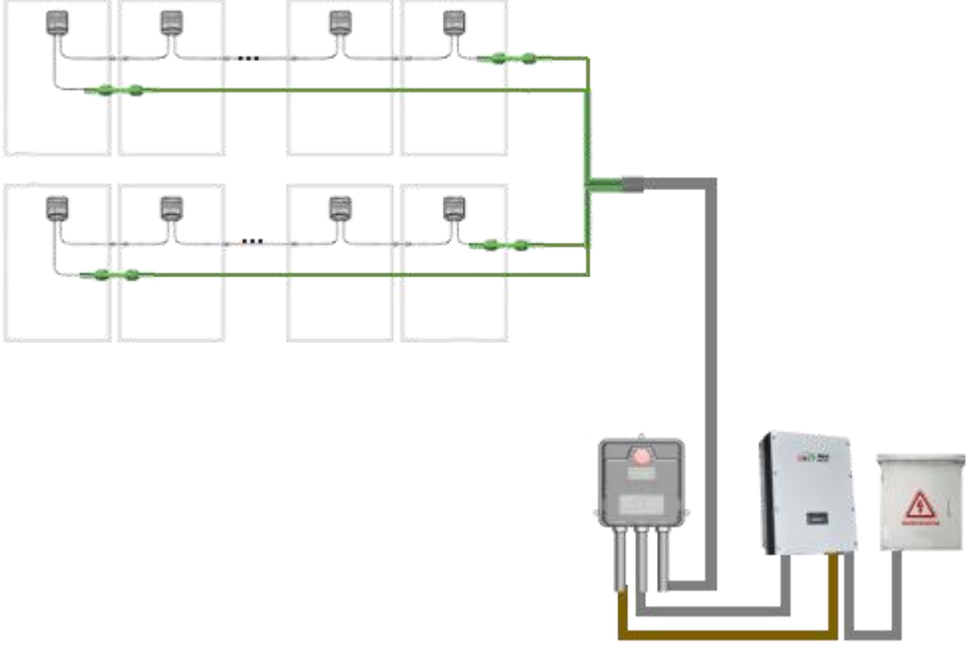
Tighten part ⑤

4. Connecting wire

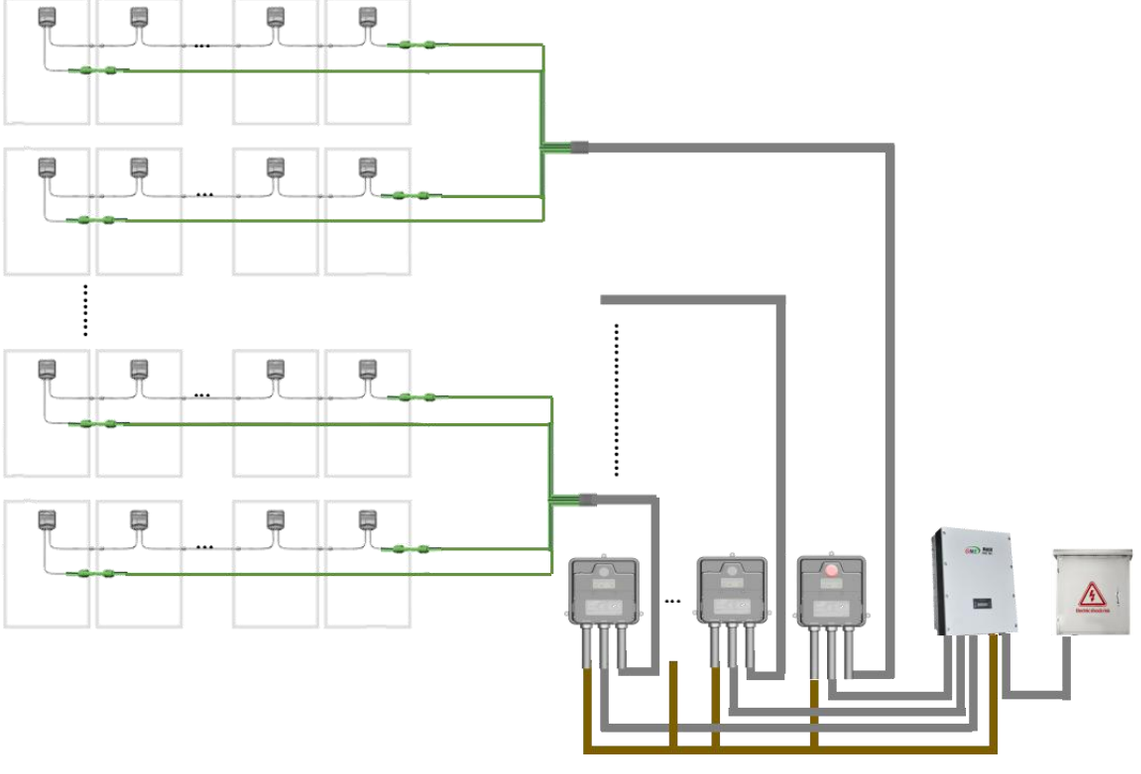
4.3 Connection of Beetrans

Two situations： 1. Module String≤2　2. Module String > 2

1. Module String≤2



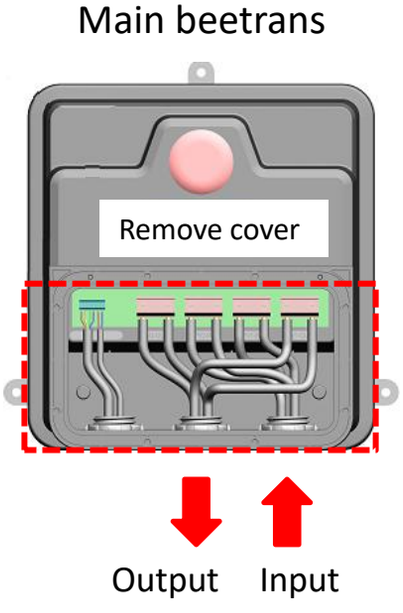
2. Module String > 2

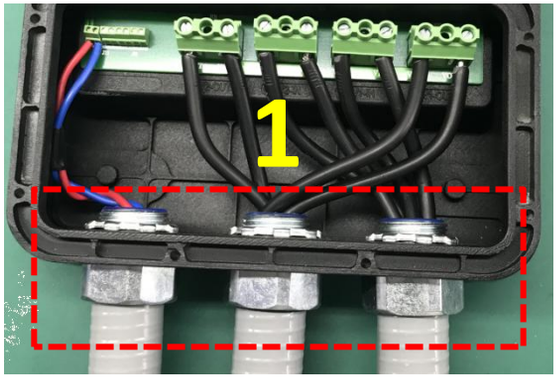


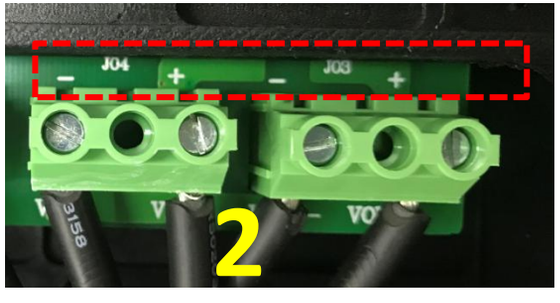
4. Connecting wire

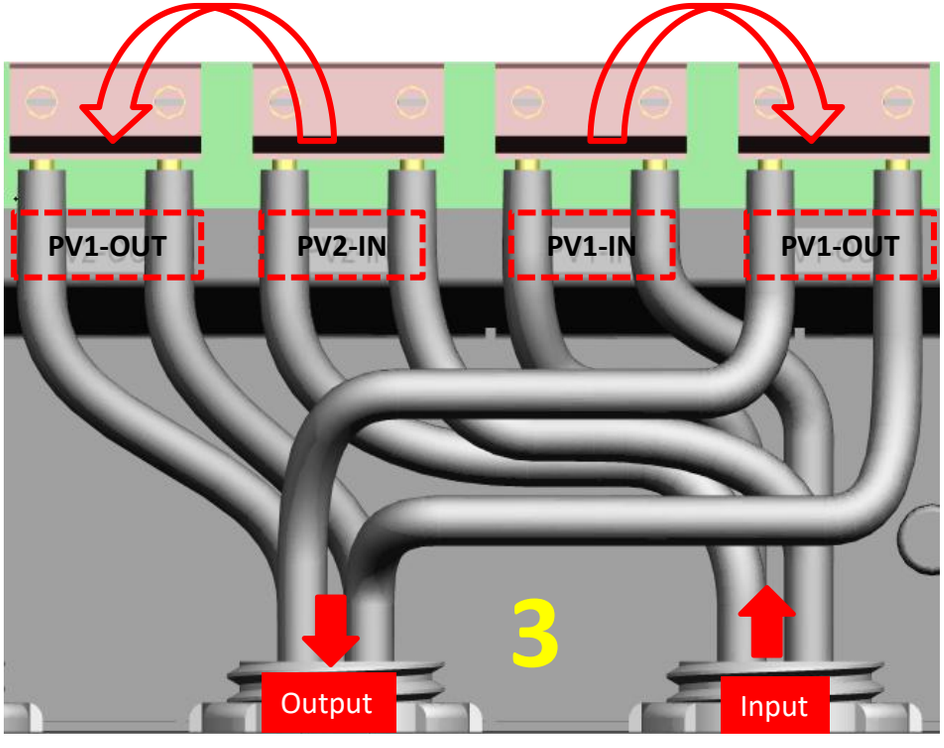
◆ 4.3.1 Module String≤2 (assume two strings)， require only one main beetrans (with switch)

➢ Connection of main beetrans：









Connection mode：① Pull out of four PV lines through the EMT pipe of the input port, tighten screw after insert into PV1-IN， PV2-IN. (Figure 2 positive and negative corresponding wiring)

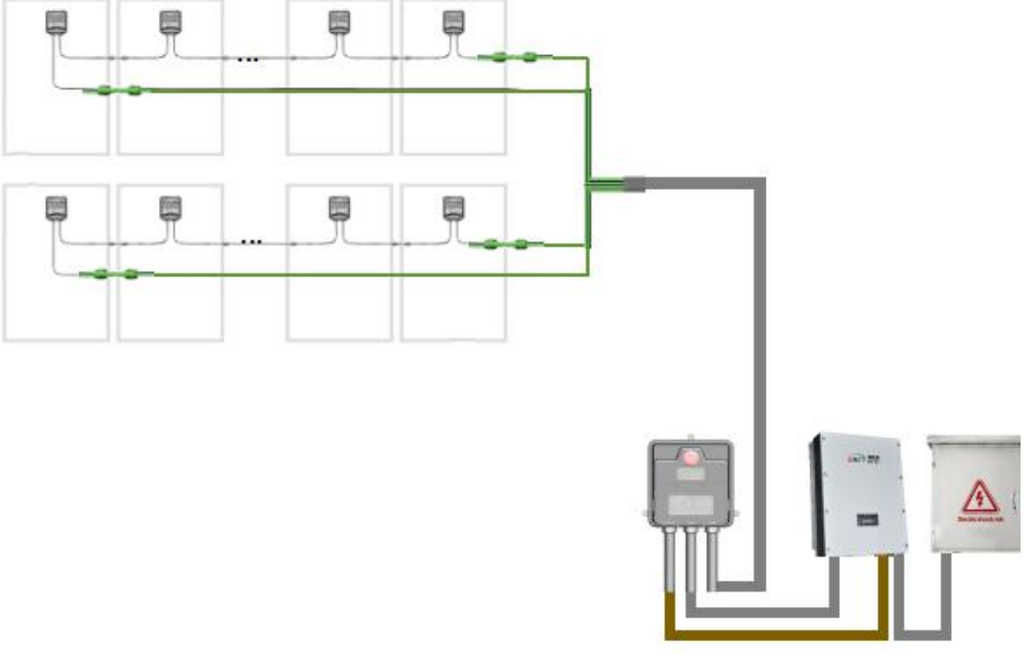
② At the junction of Pv1-out and Pv2-out, four output lines are respectively connected by positive and negative poles, and tightened with Straight screwdriver.

③ Pull out of four PV output lines from output of EMT pipe

4. Connecting wire

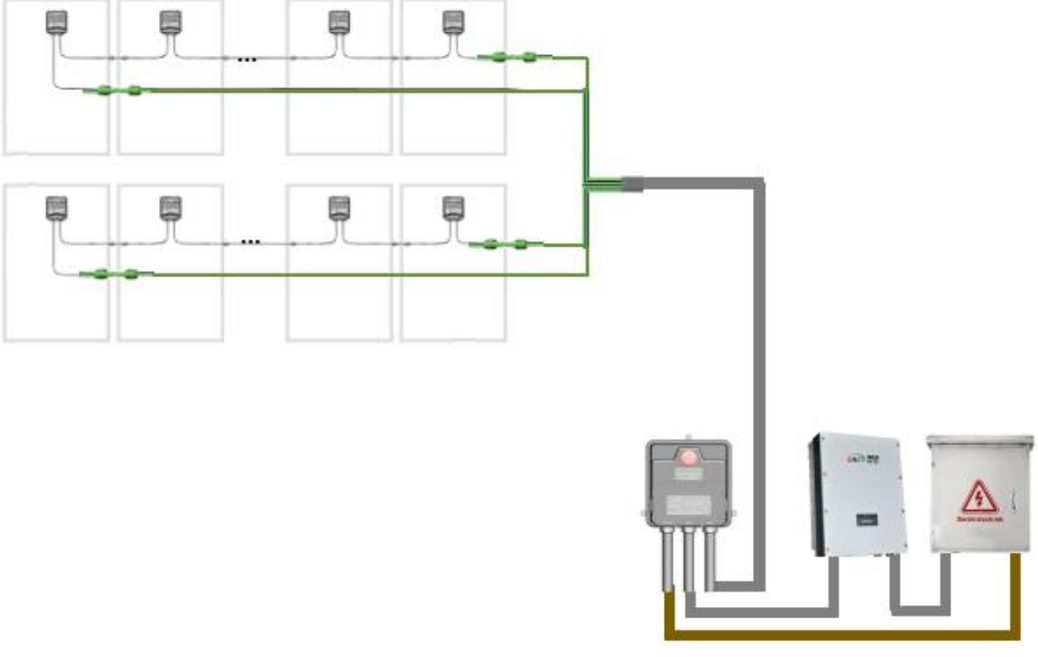
- Two types for power up main beetrans(12Vdc)

① Inverter with AC interface ： Connect adapter to inverter， power adapter feeding 12Vdc to beetrans



Connect inverter

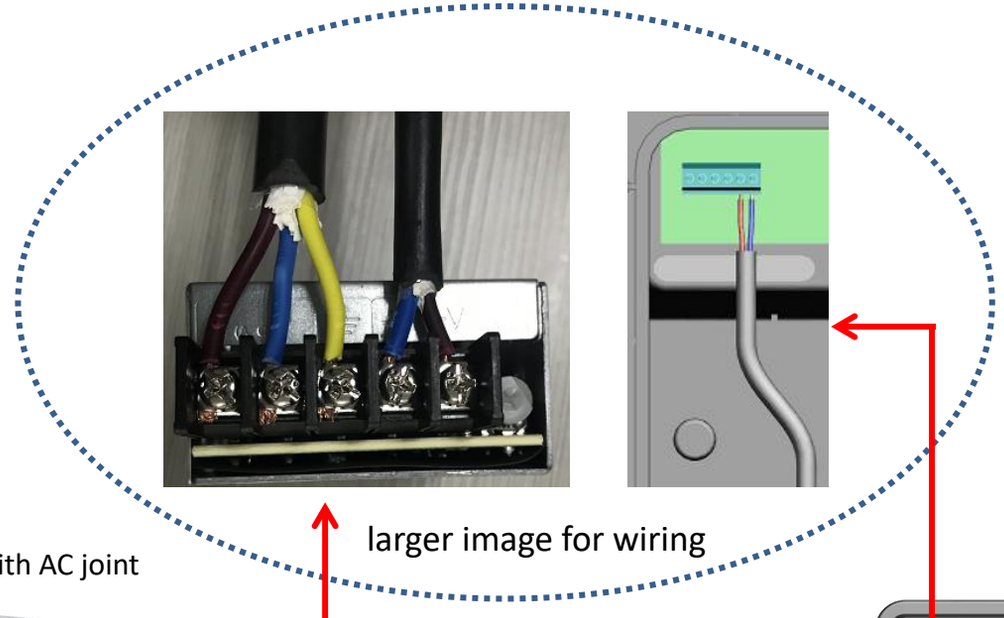
① Inverter without AC interface： Connect adapter to distribution box， power adapter feeding 12Vdc to beetrans



Connect distribution box

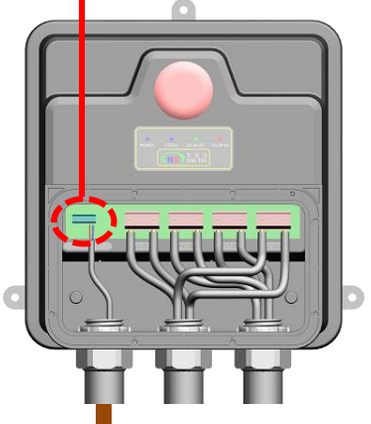
4. Connecting wire

➢ Wiring 12Vdc for main beetrans

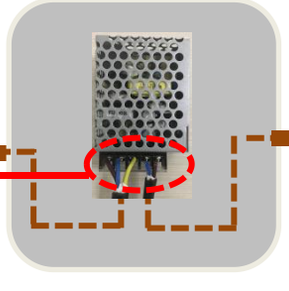


larger image for wiring

Inverter with AC joint

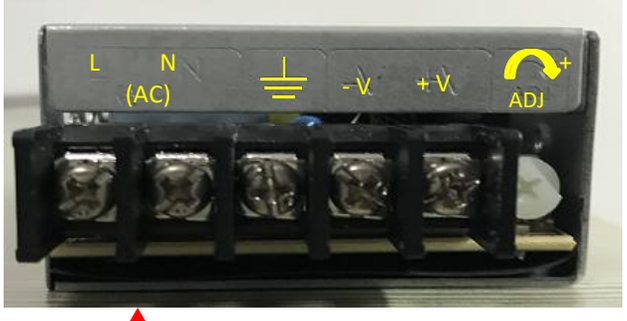


branch box
125*125*75mm

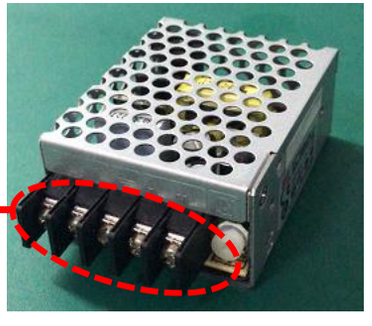


Connect adapter to inverter

☐power adapter feeding 12Vdc to beetrans 12 Vdc interface



specific picture of interface



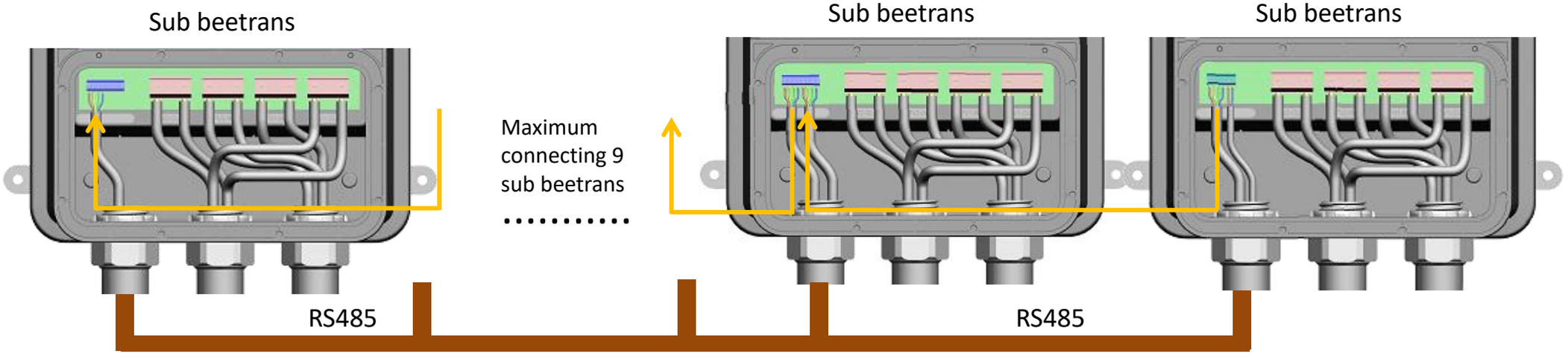
12V power adapter

✱Connect adapter to distribution box if inverter without AC interface (As shown in the previous page)

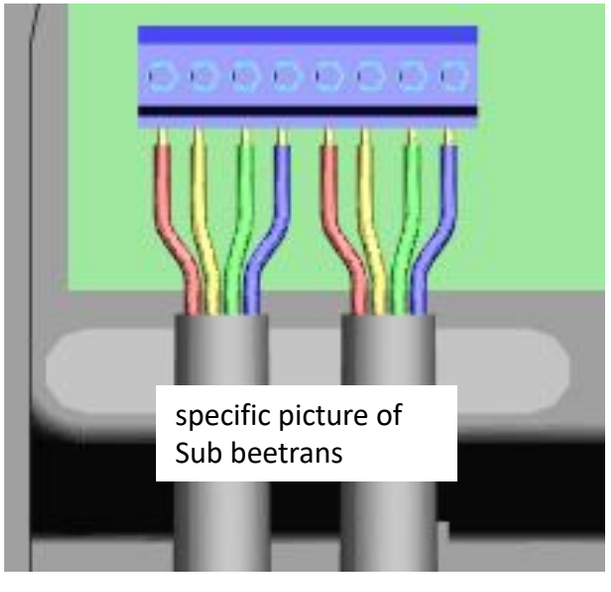
4. Connecting wire

◆ 4.3.2 Module Strings > 2

When there more than two string in system. It not only need main posterns(with switch and 12Vdc interface) but also Sub beetrans(without switch),main beetrans connect to Sub beetrans by RS 485 cable

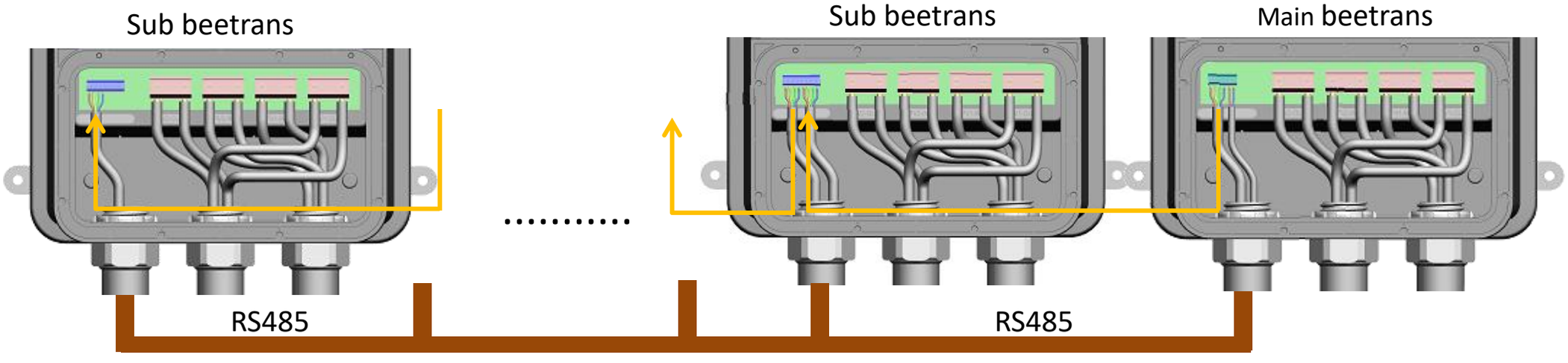


Main Beetrans	concatenation	sub Beetrans	concatenation	sub Beetrans
RS485joint		RS485joint		RS485joint
485B	←→	485B	←→	485B
485A	←→	485A	←→	485A
GND	←→	GND	←→	GND
12V	←→	12V	←→	12V



Connecting RS485 cable as shown pictures, tighten with 1.8~2.0mm Straight screwdriver after covered sub beetrans. Four color RS485 cables connect corresponds to the interface (as shown on the right)。

Notice： Any wrong connection may cause damage to material.


Sub beetrans
Sub beetrans
Main beetrans
.....
RS485
RS485

Thank you